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PIONEER INDUSTRY IN THE WEST¹

In the early economic life of the West there was no one feature which accounted for more of its peculiarities than the single fact of its isolation. This situation determined in a large measure the character of the social life, affected strongly the nature of certain industries, and influenced the attitude of the pioneer toward the various great issues. The inaccessibility of this region was emphasized from the very beginning in the long and laborious journey of the immigrant into the valley; in the difficulty which he experienced, after he had once become established, in disposing of his surplus; and in the high prices which he paid for many articles now regarded as necessities, including coffee, tea, and sugar.² The craze for internal improvements which characterized western governmental policy in the years prior to 1840, and the great significance attributed to the introduction of the steamboat on "western waters," were directly traceable to the same cause, as was also the economic self-sufficiency of the farm and household. Further, it would be difficult to say how much of the hard times in this section, money evils, debts, agitation for paper money, "stay" laws, and loose commercial honesty, were connected with the fact that the West in its isolation was compelled to work out its own problems without substantial relief or influence from the older portion

¹ Much of the material in this article is contained in a monograph written by the present writer for the Carnegie Institution of Washington, under the title of *Industrial History of the Central Mississippi Valley*. Assistance is hereby acknowledged.

² According to the entries in the old account-book of Joseph Philipson, a merchant of St. Louis, sugar in that town in December, 1808, sold for 75 cents per pound for loaf, and 37½ cents for brown. Tea sold for from \$1.75 to \$3.50 per pound, and coffee for 75 cents. Loaf sugar at Cincinnati in May, 1816, sold for 40 cents, and at Zanesville, Ohio, in 1818, for 50 cents. Moist sugar at Albion, Ill., in 1819, brought 31 cents per pound. The coming of the steamboat, which lowered freight rates, had an important effect on the prices of this class of articles. New Orleans sugar was quoted in Cincinnati in 1826 at from 14 to 16 cents. See *Niles' Register*, XXIX, 363, XXXV, 387, and X, 369. Also, Thomas Hulme, in Thwaites's *Early Western Travels*, X, 75, 108.

of the East. Finally, the fear of being shut out from the world determined the line of early settlements, which moved along the great rivers, and projected like fingers up the small streams, always keeping as near as possible to wood and water—a situation which is clearly shown by the early population maps of the West.³ The streams, therefore, offered the only hope for the marketing of the produce, and the timber usually found along the banks of the same provided the material for flatboats, upon which, long after the introduction of the steamboat, a great deal of the produce was floated to market. To settle any distance inland was to condemn oneself to great hardships, and to make it impossible to raise money with which to pay off the debts on the farms.

A detailed study will bring out these facts. About the year 1805, the usual price of carriage over the country roads was stated to have been 50 cents for 100 pounds for every twenty miles. At this rate corn, which before 1835 rarely sold for as much as 35 cents per bushel, would not stand the expense of moving twenty-five miles, even though it had been produced without cost. On the same basis, the area in which wheat could be sold at a profit to the farmer was limited to a radius of from fifty to seventy-five miles.⁴ In Kentucky, the most populous state in the West in 1805, “there was not a single species of product, with the exception of ginseng, that would bear the expense of carriage by land from that state to Philadelphia.”⁵

³ According to Faux, a farm on a road or stream sold for from 50 to 100 per cent. more than land situated back from the highway, although of no better quality. In the case of a farm on a much-frequented road, a tavern was often found to be a profitable means of investing capital, for in such an establishment the produce, in the form of food, sold for more than double what it would bring in the country markets. See Faux, “Journal,” in Thwaites’s *Early Western Travels* (1820), XII, 18.

⁴ Forty bushels of corn were a load for four horses through the worst roads, and at a rate of \$4.00 a day for the expenses of carriage, the farmer’s return for the load was not much over \$4.00. It is to be noted, however, that owing to the fact that the hard-pressed pioneer consumed or otherwise disposed of most of his corn before spring, seed corn, in that season of the year, often brought a dollar a bushel. See Faux, “Journal,” in Thwaites’s *Early Western Travels*, XI, 291.

⁵ F. A. Michaux, “Travels,” in Thwaites’s *Early Western Travels*, III, 204.

In view of this situation, it is easy to see why the farmers turned their corn into whiskey, or fed it to hogs, driving the animals to market, rather than attempting to make a profit from the sale of the grain. The same condition that made it unprofitable for the farmer to ship bulky articles like grain, made it impossible for him to import from any great distance tools used on the farm, including heavy agricultural implements, and thus, in the absence of adequate means of transportation, the burden of manufacture fell upon the small mechanics, chiefly blacksmiths, in every locality—a fact which explains the wide dispersion of manufacturing industry during the pioneer days.

Not only were the various portions of the West in a large measure isolated from each other, but because of the distance down river by way of New Orleans and the ocean to the seaboard cities of the Atlantic, and on account of the bad roads over the Alleghany Mountains, the western region as a whole, before the building of the canals, was shut out from any considerable commercial relation with the East. These difficulties are reflected in the freight rates prevailing between the East and West during the pioneer period. In 1784 it cost \$249 a ton to bring iron from Philadelphia to Presque Isle (Erie), Pennsylvania.⁶ Salt, a very necessary article, brought over the mountains on the backs of animals, sold for as much as eight and ten dollars a bushel, its great cost making the quest of salt springs one of the very first duties of the western pioneers. Between Pittsburg and Wheeling and the eastern cities the freight rate for years ranged from \$5.00 to \$8.00 per hundredweight.⁷ To the more distant points in the Ohio valley the rate was, of course, higher. The cost of bringing one hundred pounds from New Orleans to Pittsburg by flatboat or barge during the years 1786 to 1811 had been about \$6.75 per hundredweight.⁸ In 1802 the cost of carriage from Philadelphia and Baltimore to Lexington, Kentucky,

⁶ J. L. Bishop, *History of American Manufactures*, I, 567.

⁷ E. W. Gould, *Steamboat Navigation*, 121.

⁸ *Ibid.*, 121, 162, 194, 197, 199. The fact that the wagons between Pittsburg and the East often had to return empty no doubt tended to keep the rate up.

ranged from \$7.00 to \$8.00 per hundred.⁹ From Baltimore to Zanesville, Ohio, the rate was \$10.00 in 1818, and up river from New Orleans to Zanesville, via Shippingport, it was \$6.50.¹⁰

Protected by these tremendous freight imposts, the nascent industries of the West, once started, continued to grow without coming into serious competition with the established manufactures of the East.

⁹ F. A. Michaux, "Travels," in Thwaites's *Early Western Travels*, X, 203.

¹⁰ Thomas Hulme, "Journal," in Thwaites *op. cit.*, X, 75. A study of western freight rates reveals a gradual betterment of the conditions. In the days of the flatboat and keel, the trip from New Orleans to Pittsburg required from 75 to 100 days. About 1815, a keel made the trip from New Orleans to the falls of the Ohio (Louisville), in 99 days, and this was considered good time. In 1819, a steamboat made the trip from New Orleans to Shawneetown, Ill., in 13 days and 19 hours; in 1825, a trip to the same place was made in 8 days. See *Edwardsville Spectator*, June 5, 1819, and March 22, 1825. As to freight to different parts of the valley, George Imlay said that the rate from Pittsburg to Kentucky was one shilling per hundredweight about 1793, and that forty tons could not be taken from Philadelphia or Baltimore to the falls of the Ohio for under £1,600. In 1817-18, the rate from Shawneetown to New Orleans was \$1.00 per hundred, and to return, \$4.50. The rate from Shawneetown to Pittsburg was \$3.50. In 1819, it cost 25 cents per bushel to send corn from Vincennes, Ind., to New Orleans—a rate which was prohibitive. The rate from New Orleans to Louisville in 1818 (May) was \$6.25. It is to be noted that the differences between down-river and up-river rates were due to the great difficulty of working up stream before the perfection of the steamboat. From Albany to Buffalo in 1821 the rate was \$4.00 per hundred, and it was estimated that when the Erie Canal was completed the rate would fall to \$4.00 for a ton. The prediction was realized. The rate from St. Louis to Alton, Ill., in 1837-38, ranged from 25 to 75 cents per hundred, according to the state of the river. By 1834, the rate between Philadelphia and Pittsburg had been reduced to \$1.50. In the same year it was stated that freight could be sent from New York to Cincinnati for one cent per pound. Such was the revolution due to canal and steamboat. The stage of the river, however, long affected the river rates. During low water the river rate from Pittsburg to Cincinnati ranged between \$1.00 and \$2.00, while when navigation was easy the rate was only 20 to 30 cents. On groceries from New Orleans to St. Louis in 1838 the river rate was 75 cents. In October, 1843, it cost from 45 to 50 cents to send a barrel of flour from St. Louis to New Orleans; the rate on corn was 10 to 12 cents per bushel, and on wheat 10 to 14 cents per bushel. See *Edwardsville Spectator*, November 7, 1820, September 15, 1821; John Filson, "Settlement of Kentucky," in Imlay's *Topographical Description*, 320, 162; Welby, in Thwaites's *Early Western Travels*, XII, 237; Fordham's *Narrative*, edited by F. A. Ogg, 118; Flint and Hulme in Thwaites's *Early Western Travels*, IX, 164, and X, 75; H. L. Ellsworth, *Illinois in 1837-38*, 116; *Hunt's Merchants' Magazine*, 457, and *St. Louis New Era*, October 12, 1843.

So circumstanced [said Harris] they will be provident of their use of foreign articles, they will prevent their need of many of them by setting up various manufactures, the raw materials of which they so abundantly possess, and thus supply other places without needing or being able to receive any return but specie. The consequence will be that this interior country must every year become more independent [of] other countries, more prosperous, and more happy.¹¹

Pioneer life in the West revealed several stages of growth. The early historians of the region were fond of describing these changes after the analogy of waves of the ocean.¹² First came the backwoodsman with his crude implements of his own manufacture; he loved the freedom of the forest; his home was the small log cabin; when the advancing waves of population pressed too closely upon him, he either sold out or gave up his holdings, and, to use his own expression, "broke for the high timbers." Those who came with the second wave cleared the roads, bridged the streams, put up hewn log cabins with glass windows, with brick and stone chimneys, and built saw and grist mills. Their activity suggests the type of their manufactures. This wave rolled on, and lastly came the men of means and enterprise—the capitalists; small villages arose; broadcloths, silks, leghorns, crapes, and all the elements of luxury and refinement came into

¹¹ T. M. Harris, *Journal*, ed. 1805, pp. 145-46. As a matter of fact, Harris saw only one side of the matter. He did not consider that the agricultural producers of the West would soon be sorely in need of a market, and thus would become dependent on the regions outside of the valley for the sale of their goods. Other writers foresaw the growth of manufactures in the Ohio valley. The situation was commented on as early as 1769 by British officials in America, and it was used as an argument for the discouragement of immigration. "I do not apprehend," said a correspondent, "that the inhabitants could have any commodities to barter for manufactures except skins and furs, which will naturally decrease as the country increases in population, so that in a few years necessity would force them to provide manufactures of some kind for themselves, and when all connection upheld by commerce with the mother country shall cease, it may be expected that an independency of her government will soon follow" (quoted from Dillon, *History of Indiana* [ed. 1859], 85-86).

¹² It would be interesting to know with whom the figure originated. Perhaps J. M. Peck, in his *New Guide to the West* elaborated it more than anyone else. But the figure was used by James Hall, in his *Letters from the West*, 307; and much earlier by F. A. Michaux (see Thwaites's *Early Western Travels*, III, 193-94) and by Flint (in Thwaites, *op. cit.*, IX, 234).

vogue. The ring of the hammer and the hum of the shop now became familiar sounds.¹³ The evolution was not even then complete, but it pictured the passing of the pioneer. "Hundreds of men can be found," said J. M. Peck, "who have settled for the fifth and sixth times on a new spot."¹⁴

From the point of view of industry, pioneer life in the central Mississippi Valley displayed three great features. First, the fewness and simplicity of the tools with which the newcomers did their great work; second, the fact that manufactures were, in the true sense of the word "manufactures," fashioned by hand; and finally, the home consumption of almost the entire product. "With no tools but an axe and an auger," wrote Judge Hall, "the settler built his cabin, with a chimney built of sticks, and a door hung on wooden hinges, and confined with a wooden latch; chairs, tables, and bedsteads were fabricated with the same unwieldy tools."¹⁵ "A horse, a yoke of cattle, a sheep or two, usually made up the list of their possessions, outside a few household goods of the most primitive kind. They would select the land for their future home, erect a rude log cabin, and begin the work of clearing the land of timber ready for seed time and harvest."¹⁶ For household utensils, there were a few pewter dishes and spoons, knives, forks, tin cups for coffee and milk, a water pail, and a small gourd or calabash for water, with a pot and an iron Dutch oven.¹⁷ The hominy mortar and the hand mill added to the equipment. Farm implements were of home construction. "Yokes for oxen, and harness for horses, the carts and wagons in daily use, without tires, boxes or iron were all manufactured as occasion required by the self-taught artificers."¹⁸ The harrow was constructed with wooden teeth, and when in use was turned with an end forward so as not to be obstructed in its course by stumps and the limbs of trees with

¹³ J. M. Peck, *New Guide to the West*, 119-21.

¹⁴ *Ibid.*

¹⁵ *Letters from the West*, 289.

¹⁶ W. H. Smith, *History of Indiana*, I, 69.

¹⁷ J. M. Peck, *New Guide to the West* (ed. 1848), 120-25. Also, Joseph Doddridge, *Notes on the Settlements and Indian Wars*, etc., 145.

¹⁸ Davidson and Stuvé, *Illinois from 1763-1873*, 294; Thomas Ford, *History of Illinois*, 42; James Hall, *Sketches*, 69.

which the pioneer fields were strewn. A sickle or reaping-hook was the only implement used to cut the wheat. There were no cradles as yet in the country, and reaping with the sickle was very severe labor. One of the greatest problems after the wheat was cut was to thresh and clean it. At times either it was threshed with a flail, or horses were employed to tread it out. On occasions, the grain was winnowed with a sheet.¹⁹ As late as 1833, T. Flint wrote of the West, "The people are not given to experiment; [they] continue to farm in the beaten way. Agricultural improvement proceeds at a slow pace."²⁰ In Illinois, the first step forward was made about the year 1820, when a fan was invented to clean the wheat after it had been threshed. These implements were manufactured and sold at Edwardsville and at Alton, Ill. About 1835, the diamond plow appeared in the country.²¹ During the fifteen succeeding years, however, very substantial progress was made; implements operated by horse-power came into use for the reaping, mowing, and sowing of the grain.²²

Of all the pioneer crops, that of Indian corn was by far the most important. Growing with great persistence in the half-tilled ground in the midst of dead trunks of trees, corn yielded an abundant first crop, giving the poor immigrant an almost immedi-

¹⁹ John Reynolds, *My Own Times*, 90; Ball, *Northwest Indiana*, 125.

²⁰ *Condensed Geography and History* (ed. 1833), 398. About the same time James Hall wrote of the West, "The fields are rudely tilled, yet yield an abundant harvest." (*Statistics of the West*, 62). Plows were manufactured in a small way by Newell in St. Louis about 1825. This person had been a blacksmith, and put up a small establishment in connection with his shop. Plows were exported from Cincinnati before 1826; see Drake and Mansfield, "Cincinnati in 1826" in *Bullock's Travels*, 53.

²¹ John Reynolds, *My Own Times*, 90.

²² J. L. Bishop, *History of American Manufactures*, II, 484. Reynolds, writing about 1855, stated that it had not been ten years since the reaping and threshing machines had been introduced commonly into Illinois. At this later date the finest implements in the United States were coming to be manufactured in Illinois at Chicago, Rock Island, and elsewhere. A few years before, the drill for sowing grain had come into common use. The great London exhibition of 1851 directed attention to the comparative merits of American and foreign implements, and stimulated manufacture in this country.

ate return for his labor. Though in itself possessing small value in large bulk, it was for various reasons the most valuable staple; either it was easily converted into whiskey, which was at all times a marketable article, or it was fed to hogs which were driven to market, thus in the first instance giving the settlers two salable articles with which to pay their debts. In addition, a long harvest-season, an abundant yield, and the utility of all parts of the plant, greatly increased its value. The contribution of corn to the early success of pioneer industry cannot, therefore, be overestimated. In the woodlands, the first settlers learned from the Indians the method of girdling the trees, and planting the grain in the midst of the standing dead-wood. On the prairies,²³ after the sod had been turned, and while the tough grasses were being left for a season to decay, so-called "sod-corn," which had been dropped in the furrows, produced a good half-crop, and this was stacked for fodder.²⁴ Frequently pumpkin seeds were scattered in the furrows at the time the corn was sown, and no further care was required except to throw the ripe product in a wagon at harvest time.²⁵ When the corn was ripe, it was plucked by hand and hauled to a crib; and the people of the vicinity were invited to a corn-shucking—one of the great social events of pioneer life.

In addition to corn, wheat, oats, barley, buckwheat, Irish and sweet potatoes, turnips, rye for horse feed and for distilling, were important crops. Some tobacco was grown, and cotton,

²³ The conquering of the prairies presented peculiar difficulties. To the earliest comers these seemed insurmountable, because they had not learned how to handle the soil. The ground was hard, and the grasses and roots of shrubs were deep down and uncommonly tough. It was estimated that the expense of bringing prairie land under culture was as great as in the case of the woodlands. For the first plowing, six horses, or three or four yoke of oxen were needed; a sheer plow was often used turning a turf of 18 to 24 inches wide, and from 3 to 4 inches deep. A summer fallow was necessary for the rotting of the roots and the proper disintegration of the soil. See H. L. Ellsworth, *Illinois in 1837-38*, 14, and Faux, "Journal," in Thwaites's *Early Western Travels*, XI, 256.

²⁴ H. L. Ellsworth, *Illinois in 1837-38*, 14.

²⁵ Bradbury, "Travels," in Thwaites's *Early Western Travels*, V, 284.

hemp, and flax for the supply of the household clothing industry.²⁶

The pioneer fields presented a dismal appearance. The underbrush and most of the small trees were removed, but the large ones were either cut down within three or four feet of the ground, leaving the stumps standing, or else the entire dead tree after girdling was left standing. Necessity forced upon the first comers this method of utilizing the land, since on the one hand, the labor of clearing was great, and on the other, an immediate crop was needed.²⁷

²⁶ Wheat along the Illinois River weighed 60 pounds to the bushel. Sometimes the prairie lands yielded 35 bushels to the acre, though 25 bushels was the average. Corn, in Illinois, produced 80 bushels per acre; rye from 25 to 35 bushels, and oats from 40 to 60 bushels. In northern Ohio, the best land produced from 40 to 60 bushels of corn. See Evan's "Tour" in Thwaites's *Early Western Travels*, VIII, 194, and H. L. Ellsworth, *Illinois in 1837-38*, 14.

²⁷ Wood, in Thwaites's *Early Western Travels*, X, 309. Of all the critics of western agriculture, Flint seems to have been the most unsympathetic. About 1818 he contended that farmers could not find profit in hiring labor, prices of produce being very low, owing to the fact that the produce increased much faster than the power of the country to consume it. At that time he stated that 1,000 bushels of corn would not bring more than \$250, not including the expense of carrying it to market, or allowing for the food of animals, while the wages of farm laborers amounted to \$350 a year. See *Early Western Travels*, IX, 303. The majority of writers, however, took a brighter view of the situation. Ellsworth, for example, referring to Illinois, calculated that the total cost of bringing a tract of 320 acres under cultivation, fencing, and building cabins was \$1,145, and that this amount could be covered by the wheat crop of a single year. See *Illinois in 1837-38*, 70. The charges of idleness and laziness have been brought against the western pioneers. In this connection, the *Edwardsville Spectator* of September 18, 1821, said: "The farmer thinks it unnecessary to plant more grain than can be disposed of at home; thus, part of his time passes in inactive languor; but once point to him a market where he may have a sure sale for his produce, and every nerve is exerted in the cause of industry." In 1821, an exporting company was formed in Jackson County, Ill., for the purpose of assisting the farmer in taking his produce to market. See *Edwardsville Spectator*, September 18, 1821. Another charge against the first settlers was that of wastefulness in clearing the forests. In the East, particularly in Vermont, the expenses of clearing the land were frequently more than covered by the sale of the pearl ashes extracted from the burnt trees. There were persons who cleared for the sake of the ashes. In the West, however, labor was scarce; an immediate crop was needed, and there was no time for such subsidiary industries. See F. A. Michaux, "Travels," in Thwaites's *Early Western Travels*, III, 167.

One of the greatest difficulties encountered by the pioneer was reducing his grain to flour and meal. The want of mills was for years one of the most serious obstacles in the way of progress. When the settler did not do his own grinding he frequently traveled from twenty to fifty miles to find a mill.²⁸ For some years after the founding of Indianapolis, Ind., in 1819, the colony was sixty miles from the nearest grist mill, and all grain had to be hauled that distance. The absence of good roads often rendered the expense of grinding a single bushel equal to the price of two or three.²⁹ Those who manufactured their own grain resorted to various devices. "We had often to manufacture meal, when we had grain," said a pioneer of Ohio, "in any way we could get the corn to pieces. We soaked and pounded it; we shaved it; we planed it, and at the proper season grated it. When one of our neighbors got a hand mill, it was thought quite an acquisition in the neighborhood."³⁰ Owing partly to the difficulty in reaching the mills, even corn meal at certain seasons of the year was scarce. "To save meal," said another pioneer of Ohio, "we often used pumpkin bread, in which when meal was scarce, the pumpkin would so predominate as to render it next to impossible to tell our bread from that article. In after years, when in time of freezing or drought we could get grinding by waiting our turn no more than one day and a night at a horse mill we thought ourselves happy."³¹

The devices employed by the pioneer in pulverizing his grain were a half a dozen or more in number, from the mortar, grater, and hand mill, which were the crudest forms of implements, to the wind and water mill, and the horse mill; but at best, none of these was a satisfactory process.³² Water-power along the

²⁸ Faux, "Journal," in *Early Western Travels*, XI, 230; John Reynolds, *Pioneer History*, 315; Henry Howe, *Historical Collection of Ohio*, 188, and W. C. Howells, *Recollections of Life in Ohio*.

²⁹ W. H. Smith, *History of Indiana*, I, 373.

³⁰ Henry Howe, *Historical Collection of Ohio*, 66.

³¹ *Ibid.*

³² The mortar was made by cutting or burning a hole in a block of wood. For a pestle, an iron wedge was driven into a stick of suitable size. After pounding, the corn was sifted, the finer portion being used for meal, the

small rivers and streams failed during a drought, and it was not available in winter, when the streams were frozen over. Wind-mills were dependent on the caprice of that element. The want of adequate milling facilities afforded a most powerful stimulus to the introduction of steam-power.³³ In Indiana, according to the *Census* of 1810, there were only thirty-three flouring mills.³⁴ The number in Illinois was probably less. Regarding Missouri in 1810, Flint wrote, "As yet there were no mills but a few in-different ones worked by horses." The same person about 1826 wrote: "Steam mills arose in St. Louis, and ox mills on the principle of the inclined plane." In Missouri in 1840, there were 64 flouring and 636 grist mills. The total value of the mill product of Missouri in that year was \$960,058.³⁵ In Illinois the produce from all mills at the same time was valued at \$2,417,826; in Kentucky at \$2,437,937; in Indiana at \$2,329,134, and in Ohio at \$8,868,213.³⁶

The struggle with the primitive surroundings was again manifest in the effort of the pioneer to provide himself with shelter³⁷ and clothing.

coarser for hominy. The grater was made by perforating a circular piece of tin with holes. The corn, still in the ear, was rubbed over the rough surface. The hand mill employed small stones, smaller than those used in the horse mill. For sifting, parchment perforated with holes was sometimes used.

³³ The settlers in the vicinity of Belpre, Ohio, in 1791 constructed a floating mill in the Ohio River, the wheel of which was driven by the current. See S. P. Hildreth, *Pioneer History* (of Ohio), 375-76.

³⁴ *Niles' Register*, VI, 394.

³⁵ The figure includes flour, meal, oil, and lumber, and the same comment applied to the value in the other western states for 1840.

³⁶ *Compendium of the Sixth Census of the United States*, 273, 285, 297, 309, 321.

³⁷ The pioneer prepared all the materials for his dwelling. After selecting the spot for his cabin, usually in the timbered land, and near some spring, the first operation was to cut about forty logs of the proper size and length for the cabin, and to haul them to the spot. For clapboards, a large oak, or some other timber of straight grain, was selected and split with a froe. These were trimmed to dimensions of six or eight inches in width and about half an inch in thickness. Puncheons were used for floors. They were made by splitting trees about eighteen inches in diameter into slabs two or three inches in thickness and hewn on the upper surface. The doorway was made by cutting out the logs after raising, and by putting upright pieces of timber at the sides. Shutters.

Whole households [said Hildreth, writing of the early days in Ohio] were clad in dressed deer-skins. Some [persons] possessed great skill in making them soft and pliable, equal to the finest cloth. Before the introduction of sheep, buckskin pantaloons were in general use by all the farmer's boys. The New England settlers, with most of the frontier inhabitants, made cloth of various materials. For the first two or three years, hemp was raised in small quantities, water rotted and manufactured into cloth. Flax was also raised.³⁸

Nearly every family had spinning wheels and looms.

For years after the first settlement of Ohio nearly all the cloth worn in the families of the farmers, and in many cases in the towns, was made in the houses of the weavers by their wives and daughters. Necessity, as well as economy, led to this domestic manufacture. Foreign cloth was too dear for common use, and was only worn for the nicer dresses.³⁹ The wool was sometimes carded at home, but usually it was sent off to a carding machine which was often set up in connection with a mill. There the wool was prepared for spinning by carding and making it into rolls from which an even thread was easily spun, either on a large spinning wheel or on a little treadle wheel used, also, for flax. The best flax was spun into fine thread for linen of which shirts and like wear were made; the coarser quality was turned into sheeting and summer pantaloons. Sometimes, the wool was spun into an average grade of material for either cloth or flannel. A mixed cloth, called linsey, was made by the pioneers throughout the West. It consisted of a linen warp with woolen filling. It was worn mostly by women and children.⁴⁰

were made of clapboards pinned on cross pieces, hung by wooden hinges, and fastened by a wooden latch. Not a nail or a bit of glass was used. When all the material was in readiness, the men of the settlement were notified to collect and help raise the building. See J. M. Peck, *New Guide to the West* (ed. 1848), 118-23.

³⁸ S. P. Hildreth, *Pioneer History*, 393.

³⁹ *Ibid.*

⁴⁰ W. C. Howells, *Recollections of Life in Ohio*, 124. When these articles were sold the estimated value was as follows: cloth woven one yard wide, \$1.25 to \$1.50 per yard; linsey, 50 cents per yard; flannel 75 cents; fine flax linen 50 cents. See Howells, pp. 124-25. Numerous advertisements of wool-carding can be found in the early western newspapers. On August 15, 1829, a person announced in the *Illinois Intelligencer* that he had a carding machine at

In the Ohio river towns, where the possibility existed of selling the cloth, mills began to appear at an early date, but inland the population was for many years dependent on its own industry for the supply of wearing material. In Indiana, for example, it was not until some time after the state was admitted to the Union that spinning mills were erected for the production of fabric for domestic use. These mills were small concerns depending on wool from the few sheep raised in the vicinity. Very often such establishments failed owing to the fact that the supply of raw material was only sufficient to keep them in operation a few months. Moreover, there was no facility for sending the finished product to a more distant market.⁴¹

About 1809, a factory for the production of cotton and woolen machinery was erected at Cincinnati. During the six succeeding years, 23 cotton-spinning mules carrying 3,300 spindles, 71 roving and drawing heads, 14 cotton- and 91 wool-carding machines were manufactured, not to mention wool-spinning machinery to the extent of 130 spindles.⁴² At Cincinnati, in the winter of 1815-16, a woolen establishment operated by a 20-horse-power steam engine, and capable of producing sixty yards of broadcloth per day, was advertised to begin operation.⁴³ At Lexington, Ky., in this same year, there was a large mill which turned out chambrays, sheetings, tablecloths, and other

Greenville, Ill. He asked his patrons to send their wool well picked, clear of burrs, with one pound of grease to every eight pounds of wool. "If I furnish grease, or pick your wool, I must be paid for it. Terms for carding 8 cents per pound, or one-fifth of the wool. Extra charge of ten cents for mixing." At Kaskaskia, June 1, 1818, the price for carding common wool was ten cents per pound. See *Western Intelligencer* of that date. At Edwardsville, June 5, 1819, the price for carding common wool was from 10 to 12½ cents, with an extra charge for grease. See *Edwardsville Spectator* of that date.

⁴¹ According to the *Census* returns of 1810 there were in Ohio 18 carding machines, 21 fulling mills, and 768 cotton spindles in operation. The cotton goods made in families in that state were valued at \$43,600, and woolen cloth at \$112,485 (*Niles' Register*, VI, 210). In Kentucky in 1810 there were 4,685,385 yards of cloths and stuffs manufactured, valued at \$2,057,081, and in Indiana the value of cloth manufactured was estimated at \$159,052 (*Niles' Register*, VI, 249, 394).

⁴² *Niles' Register*, IX, 35.

⁴³ *Ibid.*

materials, to the value of \$175 daily.⁴⁴ One hundred and fifty persons were employed. In fact, not only were Cincinnati and Lexington the seats of a very active cloth industry, but there were thriving establishments at Steubenville, Dayton, Zanesville, and New Lisbon, in Ohio; at Louisville, in Kentucky, and at other smaller places. On February 2, 1822, *Niles' Register* made the following comment on the industry of Ohio:

"The reflecting man will ponder not a little on the fact that wool is transported from New Jersey to be manufactured into cloth at Steubenville in the state of Ohio, and that such cloth is sent to the New York, Philadelphia, and Baltimore markets."⁴⁵ Again on July 27 of the same year the *Register* said, "the success of her (Ohio) manufactures is already apparent; she exports wheat, wool, flax, etc., in large quantities to the Atlantic states, in the form of cloth, etc."⁴⁶

The first sheep were introduced into Ohio about the year 1797, or 1798, coming from Pennsylvania; but the number did not increase rapidly at first. In May, 1814, an inhabitant of Chillicothe, Ohio, wrote, "Four years ago, I believe there was not a merino sheep in this state, and a very few of any breed, nor was there any manufacturing establishment [of wool] in this section of the state."⁴⁷ From this date forward, however, the number of merino sheep increased rapidly. In 1814, one person in the neighborhood of Chillicothe owned a flock of 1,000;⁴⁸ and in 1825, in one county alone in Ohio, namely Jefferson, there were approximately 25,000 sheep, one man owning a flock of 3,000 merinos. The clip of this flock in one year was valued

⁴⁴ *Ibid.*, 369, Supplement, June 15, 1816.

⁴⁵ *Ibid.*, XXI, 367.

⁴⁶ *Ibid.*, XXII, 343. An establishment at Steubenville, in about 1834, is said to have consumed regularly 60,000 pounds of wool annually for a number of years prior to that date (R. Bache, *View of the Valley of the Mississippi*, 153). In the South and West in 1840, the estimated number of woollen factories was 310, and fulling mills, 302, with an aggregate annual product of \$1,098,872 (De Bow, *Commercial Review*, I, 258).

⁴⁷ *Niles' Register*, VI, 209.

⁴⁸ *Ibid.*

at \$5,000.⁴⁹ The first merino sheep in Illinois were introduced into Edwards County about the year 1818 by George Flower, who, with Morris Birbeck and others, settled at Albion.⁵⁰

The pioneer domestic manufactures, also, included cotton goods. A cotton patch, in all the western states, was included in the out-of-door cultivations, cloth of that material constituting the greater portion of the summer clothing. The various articles were colored, when so desired, with indigo or copperas; sometimes the bark of various trees provided the coloring matter.⁵¹

As in the case of woolens, so with cottons, between the years 1810 and 1820, mills sprang into existence in the Ohio river towns. In 1815 there were four spinning establishments at Cincinnati with 1,200 spindles moved by horse-power.⁵² Eight years later there were in Ohio 1,680 spindles consuming 81,360 pounds, and in Kentucky, 8,097 spindles with a consumption of 360,951 pounds of cotton.⁵³ The cotton industry west of the Mississippi River appeared at a much later date. As late as 1848 there was only one spinning mill in this latter section. This was located at St. Louis. It was equipped with 1,600 spindles, employed 50 persons, and consumed 650 bales of cotton per year.⁵⁴

The culture of the castor bean and the manufacture of the oil deserves mention as one of the pioneer industries of the West. A few farmers in the interior counties of Illinois engaged in this business as early as 1825. In 1826, Dr. Ezra Baker, of Wabash County, shipped a number of barrels to New Orleans. Considerable quantities were produced in Randolph, Madison, and Wayne

⁴⁹ *Ibid.*, XXIX, 130. In Cleveland County, Ohio, in 1828, there were upward of 33,000 sheep (*Niles' Register*, XXXIV, 252). The price of wool at Steubenville in 1823 was as follows: for prime merino, 80 cents per pound; second quality, 65 cents.

⁵⁰ J. L. Bishop, *History of American Manufactures*, II, 245.

⁵¹ Thomas Ford, *History of Illinois*, 41-42; F. A. Michaux and John Bradbury, in Thwaites's *Early Western Travels*, III, 248, and V, 285.

⁵² *Niles' Register*, IX, 36.

⁵³ E. Dana, *Geographical Sketches*, 75, 76, 82, 115.

⁵⁴ *Western Journal*, I, 229 ff. See, also, report of Morgan Neville on "Western Manufactures," in *Ex. Doc.*, 22d Cong., 1st Sess., 860-68.

counties.⁵⁵ In Ohio, peppermint and worm-seed oil were manufactured in a small way.⁵⁶

Other industries, not strictly characteristic of the pioneer period, were developing to much importance. Cities and towns were beginning to grow rapidly, and besides their commercial activity, their manufactures were coming to satisfy great wants in every part of the West. Here, all the important trades had become well established.⁵⁷ The urban manufactures, therefore, included ironware of various descriptions, steam engines, particularly for milling purposes, cotton mills, agricultural implements, carriages and wagons, hats and caps, hardware, glass, pottery, brick and lime, soap, candles, cloth, and clothing. All these articles were among the exports of the western towns. Outside the cities, several great industries were widely dispersed. In 1840, there were 1,937 tanneries in 327 counties in 5 of the western states.⁵⁸ The manufacture of liquors—whiskey, ale, porter—was widely distributed, almost every county having at least one establishment. In five western states in 1840 there

⁵⁵ *Illinois Intelligencer*, May 18, 1826. In the *Edwardsville Spectator* of April 19, 1825, Dr. John Todd advertised that he would receive castor beans or castor oil at the market price in payment for debts "already or hereafter to be contracted on account of [his] services." To encourage the culture of the plant, John Adams of Edwardsville advertised on March 22, 1825, in the *Edwardsville Spectator*, that to "any person who will deliver me 500 bushels next fall of his own raising, I engage to give \$50.00 exclusive of the above price" (i. e., the equivalent of \$1.25 per quart for the manufactured oil). About 1826, Adams produced 500 gallons which he sold for \$2.50 a gallon; in 1827 he manufactured 1,000 gallons which sold at \$1.75. In 1830 his output reached 10,000 and the price ranged from 75 to 80 cents. In this connection see also *Edwardsville Spectator*, March 8, 1825, and February 1, 1823; J. M. Peck, *Gazetteer of Illinois* (ed. 1837), 228, 321; R. Bache, *View of the Valley of the Mississippi*, 224; *Illinois Monthly Magazine*, I, 128.

⁵⁶ Drake and Mansfield, "Cincinnati in 1826," in Bullock's *Travels*, 13, note.

⁵⁷ Thus, in St. Louis, according to the Directory of 1821, there were clock-smiths, silver-platers, engravers, stonecutters, bricklayers and plasterers, carpenters, blacksmiths, gunsmiths, copper and tin workers, cabinet-makers, turners and chair-makers, saddlers, hatters, tailors, boot- and shoemakers, painters, bakers, coopers. There were, also, three weekly papers, two binderies, one brewery, a tannery, three soap and candle factories, and potteries not far distant. In the Ohio river towns the industries were even more diversified.

⁵⁸ In Missouri, Illinois, Indiana, Ohio, and Kentucky.

were 2,192 distilleries and breweries.⁵⁹ Almost every county, moreover, had its blacksmith-shop wherein were manufactured agricultural implements and carriages. Finally, flour and grist mills were found everywhere. Thus, as heretofore indicated, the wide dispersion of industries was one of the features of the pioneer period.

The disappearance of the pioneer forms of enterprise was gradual. The wave, so called, passed inland, moving away from rivers and streams as the good lands in those vicinities were taken up. Places which were accessible to water communication soon found a considerable betterment in their condition. To this progress the introduction of the steamboat and the building of canals made further contributions. Meanwhile, another significant change was taking place. The inadequacy of wind and horse-power had long been felt. Even water-power was subject to changes of seasons on the one hand, and on the other, was totally wanting in many sections. A need was now felt for a new power which could be made available at all times and places. This was supplied by the introduction into the western flour and saw mills of the steam engine—a change which was becoming very general about the year 1835.

The mill period, which followed this earlier phase of pioneer industry, was characterized by two main features. In the first place, there appeared hundreds of small establishments, which attempted to supply only a local demand, doing business with a small capital, and averaging a small annual output. These conditions gradually changed toward 1860, when on the one hand, the capital and product per establishment greatly increased, and on the other, the number of establishments in many of the manufacturing industries greatly diminished. The second feature of this period was the predominance of the mill, including the saw mill, the flour mill, and the grist mill, as a factor in production. Other industries, which had their beginning in the earlier pioneer period, greatly increased their output. At the same time, the manufacture of boots and shoes, of clothing, and

⁵⁹ *Compendium of the Sixth Census of the United States*, 270, 282, 306, 318.

of beer, and the printing and publishing industries, rose to importance. The manufacture of agricultural implements, of machinery, of carriages and wagons, grew to large proportions.⁶⁰

The transition from the former period to the present was gradual; in fact, pioneer life with its peculiar forms of production was still in existence in some portions of this region,⁶¹ and domestic manufactures, though on the decline, were still of considerable importance. These changes are indicated by the following table:⁶²

DOMESTIC PRODUCTIONS ACCORDING TO THE CENSUS REPORTS
OF 1840, 1850, AND 1860, AND THE PER CAPITA RATE

Year	State	Value Produced	Population	Per Capita Production
1840.....	Missouri	\$1,149,544	383,702	\$2.99
1850.....	Missouri	1,674,705	682,044	2.45
1860.....	Missouri	1,984,262	1,182,012	1.59
1840.....	Illinois	993,567	476,183	2.09
1850.....	Illinois	1,155,902	851,470	1.35
1860.....	Illinois	923,220	1,711,951	.54
1840.....	Indiana	1,289,802	685,866	1.88
1850.....	Indiana	1,631,039	988,416	1.65
1860.....	Indiana	986,393	1,350,428	.63
1840.....	Kentucky	2,622,462	779,828	3.36
1850.....	Kentucky	2,459,128	982,405	2.50
1860.....	Kentucky	2,095,578	1,155,684	1.81
1840.....	Ohio	1,853,937	1,519,467	1.22
1850.....	Ohio	1,712,196	1,980,329	.87
1860.....	Ohio	596,197	2,339,511	.26

This table shows that the per capita output of home productions was least in Ohio and Indiana. This was to be expected from the fact that this region was nearest the western centers of

⁶⁰ The period 1835-1860 also marks the beginning of iron mining in Missouri, and of the growth of the iron manufactures of that state. The smelting of lead in Missouri and Illinois, especially in the latter state, was pursued with great vigor.

⁶¹ See, for example, Ball, *Northwest Indiana*, 81.

⁶² Figures for production taken from *Sixth Census U. S. Manufactures*, 359; *Preliminary Report of the Eighth Census U. S. Manufactures*, 209; *Seventh Census U. S. Manufactures*, 631, 682, 735, 797, 868; *Eighth Census U. S. Agriculture*, 37, 45, 65, 95, 119.

manufacture. The fact that in Missouri and Kentucky the figures remained relatively high may be accounted for at least partially on the ground that these states were slow in developing railway communications, and thus their population had not such ready access to the manufactured goods of the Ohio region as the other states of this section. A steady decline, however, is noted in all the states mentioned.

Some of the greatest industries of this section were at this time directly connected with the supply of agricultural needs. The appearance of numerous small industries for the manufacture of agricultural implements, of carriages and wagons is well understood, since the great increase in the production of corn and wheat called for mechanical aids both for planting and harvesting; and in the absence of large establishments elsewhere adequate to supply the demand, and of a cheap means of getting the heavy manufactured implements to their destination, the strain fell upon the small mechanics' shops in every vicinity.

Attention has already been called to the fact that one of the great features of this period was the appearance of a large number of small establishments which had only a small output. The study of several of the manufactures in detail will indicate this characteristic. In 1840, Ohio ranked second in the production of distilled liquors; Indiana, fifth; Kentucky, sixth, and Illinois, seventh.⁶³ The total capital invested in that industry in these states, including Missouri, was in 1840, \$1,828,874, and there were in all 2,192 distilleries and breweries with an average capital, considering the whole region, of \$834. In Ohio, there were 390 establishments scattered throughout 57 counties. The total capital invested in that state, including 59 breweries, was \$893,119. In Indiana, there were 323 distilleries in 57 counties with a total capital, including 20 breweries, of \$292,316; in Illinois, 150 distilleries in 51 counties with a total capital, again including breweries, of \$138,155; in Missouri, 293 distilleries in 49 counties with a total capital of \$189,976, including breweries; and in Kentucky, 889 distilleries in 74 counties with a total capital of \$315,308, which figure also includes breweries. Thus

⁶³ *Compendium of the Sixth Census*, 270, 282, 306, 318.

the capital per establishment in Missouri was \$633; in Illinois \$858; in Indiana \$852; in Ohio \$1,988; and in Kentucky \$332. It thus appears that distilleries were widely scattered, and that the largest average establishment was in Ohio, and the smallest in Kentucky. By the year 1860 the number of distilleries had greatly diminished, and on the other hand, the capital invested and the value of the produce per establishment had greatly increased. In that year the average capital per establishment for the whole region was \$13,500, against \$830 in 1840. In 1860 the total number of establishments in the five states was 433, and the total capital invested \$5,862,502. Of this amount \$2,723,200 was invested in Ohio, and \$1,728,400 in Illinois. The value of the product in 1860 was in Ohio \$6,176,437, and in Illinois \$4,302,464.

The leather industry displays the same characteristics as described for the liquor business. Throughout this region in 1840 there were 1937 tanneries, with an average capital of \$1,182; in Missouri, 43 counties reported tanneries; in Illinois, 55 counties; in Ohio, 73 counties; in Indiana, 71 counties; and in Kentucky, 83. In 1860 the total number of establishments had diminished to 773 for the whole region, and the average capital had increased to \$4,200, and the product per establishment to \$6,400.⁶⁴

These features were again strikingly illustrated in the carriage and wagon industry. In 1840, in Missouri 30 counties reported this manufacture, with a total capital of \$45,074 and an annual output of \$97,112. In Illinois, carriages and wagons were manufactured in 46 counties; in Ohio, in 65 counties; and in Indiana, in 58. Even in 1860 the industry continued to be widely distributed, 1,653 establishments in the five states reporting such manufacture.⁶⁵

Finally, the important industry of agricultural implements is described by the same characteristics. Figures are not available for a detailed study of this manufacture in 1840; but the status

⁶⁴ See *Compendium of the Sixth Census of the United States*, 269, 281, 293, 305, 317.

⁶⁵ *Compendium of the Sixth Census of the United States*, 269, 296, 308, 320.

in 1860 was as follows: in Illinois 65 counties reported the manufacture, and the total number of establishments in that state was 211; the average capital employed was \$9,300, and the value of the average annual production about \$11,900. In Missouri there were 43 establishments with an average capital of \$3,900, producing an average value of \$7,400. Twenty-five counties reported the manufacture. In Indiana 44 counties reported agricultural implements, and in Ohio, 55 counties. The relatively small capital and output at this time are interesting on account of the concentration of industry which began to some extent to manifest itself during the early part of the period 1860-1900.

The second great feature of the period was the large percentage which the mill product—flour, grist, and lumber—formed of the total value of manufactured product. In Missouri, in 1840, the mill product amounted to 16.2 per cent. of the whole manufactured value in the state; in 1860, it was 30.4 per cent. In Illinois, in 1840, the product from mills formed 30.1 per cent. of the total, and in 1860, 41.5 per cent. In Ohio, at the census of 1840, the mill product amounted to 28.2 per cent. of the total, and in 1860 to 25.3 per cent. By 1870, the percentage of mill product to total product in all these western states had begun to show a considerable decline. In this year, it formed in Ohio only 16 per cent. of the total, in Illinois 27 per cent., and in Indiana 35 per cent. The mill product in Ohio in 1905 amounted to a little over 7 per cent. of the total, and in Indiana in the same year to about 14 per cent. The following table indicates this matter in detail.⁶⁶ In 1840 there were in these states, including Kentucky, 1,160 flouring, 4,962 grist, and 6,027 saw mills.

The cotton and woolen industries attained considerable importance during the pioneer period in the West, as is indicated in the table.

⁶⁶ *Compendium of the Sixth Census*, 285, 309, 321; *Eighth Census*, 113, 145, 319, 487. Mill product includes flour and grist, lumber and timber and planing mill, and in Ohio, oil. The mill products of 1864 and 1905 are not strictly comparable, since the figures at the later date are not quite so comprehensive as those in 1860.

THE RELATION BETWEEN MILL PRODUCT AND THE TOTAL MANUFACTURED PRODUCT IN 1840 AND 1860

Year	State	Production from Mills	Total Manufactured Product	Percentage of Mill Product of Total
1840.....	Missouri	\$ 960,058	\$ 5,946,759	16.2
1860.....	Missouri	12,721,206	41,782,731	30.4
1840.....	Illinois	2,417,826	8,021,582	30.1
1860.....	Illinois	23,866,432	57,580,886	41.5
1840.....	Indiana	2,329,134	9,379,586	24.9
1860.....	Indiana	21,784,275	42,803,469	50.9
1840.....	Ohio	8,868,213	28.2
1860.....	Ohio	30,841,280	121,691,148	25.3

VALUE OF COTTON AND WOOLEN PRODUCTS IN 1850 AND 1860

STATES	WOOLEN PRODUCTS*		COTTON PRODUCTS†	
	1850	1860	1850	1860
Ohio.....	\$1,513,978	\$825,231	\$594,204	\$723,500
Indiana.....	265,412	649,771	86,660	344,350
Kentucky.....	424,944	845,226	445,639	315,270
Illinois.....	200,845	187,613	18,987
Missouri.....	56,000	143,025	142,900	230,000

* *Eighth Census U. S. Manufactures*, Introduction, xxi.

† *Ibid.*, 113 ff., 195 ff., 317 ff., 485 ff.

There was a wide difference, however, between these two industries as they appeared in the West; for while the woollen manufacture was widely distributed, cotton manufacture was concentrated in a few localities. Thus, in 1860, fifty-seven counties in Ohio, eighteen in Kentucky, and forty-eight in Indiana reported production of woollens.⁶⁷

In Ohio the cotton industry was concentrated in Hamilton and Jefferson counties, which together reported \$215,000 capital and \$504,500 of products. In Kentucky, there was one large establishment in Fayette County and another in Mason County. In Missouri, the whole cotton industry was located in St. Louis, where two establishments employed together a capital of \$169,000 and produced goods valued at \$230,000. In Indiana, practically

⁶⁷ *Eighth Census U. S. Manufactures*.

the whole cotton industry was concentrated in Perry County. The establishment at Cannelton, Perry County, Ind., was one of the most successful in the West. It enjoyed certain advantages in common with other western manufactures, namely, cheap fuel and building material, and a near-by market for the finished product, together with a supply of raw cotton not far distant. The workmen were brought from Lowell, Mass., and were under contract to receive wages at the Lowell rate.⁶⁸

There were other advantages which the western cotton factories enjoyed over their eastern competitors. They could, for example, select their own time for receiving cotton, while the New England factories were either under the necessity of carrying a heavy stock or of entering the market at various times during the year.⁶⁹ Moreover, the western mills were in the midst of the communities where the goods were consumed, and they were thus able to save the return freights. For these reasons, it was estimated that the New England mills were required to carry a much heavier capital than those in the West.⁷⁰ Still, there was frequent complaint in the West that more capital was needed to develop the industries, and that other manufactures were more remunerative than cotton manufacture.⁷¹

In 1850, Missouri consumed in the manufacture of cotton goods 864,000 pounds of cotton; but as no cotton was produced in this state the quantity consumed had to be imported. Indiana, in 1850, produced only 56,000, and consumed 270,000 pounds. In 1860, this state reported none produced, but consumed 1,813,944 pounds. In the state of Kentucky, about three times as much was consumed as produced. Ohio consumed, in 1850, 1,708,000 pounds, and in 1860, 3,192,500 pounds, but according

⁶⁸ *Hunt's Merchants' Magazine*, XXV, 249-51.

⁶⁹ *Western Journal and Civilian*, I, 128.

⁷⁰ The *Western Journal and Civilian*, I, 128, maintained that the New England establishments required a capital of \$100,000 more than a good-sized mill in the West.

⁷¹ An interesting discussion of this matter will be found in De Bow's *Commercial Review of the South and West*, VII, 348; VIII, 307, 462, 550; XIX, 693; *Hunt's Merchants' Magazine*, VI, 179; IX, 253, 351, 191; XXI, 492, 628; XXII, 26, 195, 290.

to the reports, none was grown at either period. It is evident, then, that by far the greater part of the raw material was grown at some distance from the place of consumption. Considering the cheap ocean rates on cotton, it is by no means certain that the advantage of being near the cotton fields was a great advantage to the West. And on the other hand, since the finished product contained a large value in small bulk, the ratio of freight cost was low, and the eastern manufacturers were not heavily handicapped in competing with the western mills.⁷² But, in the fact that factory labor was relatively high in the West, and that western capital was not satisfied with less than from 15 to 25 per cent. remuneration,⁷³ there is a sufficient cause for western capital not taking greater hold on the production of cotton goods.

Woolen manufacture in the West partook more of the nature of a household industry. It therefore required less capital, and was not seriously embarrassed by the high price of western labor. Even so, however, a very large proportion of the wool grown in the West was exported.⁷⁴

With the closing of this period the western industries began to lose their primitive characteristics. Heretofore, by far the larger part of the industrial enterprises were involved in the production of such raw materials as could be brought forth with

⁷² See references given in the preceding note.

⁷³ Report of Morgan Neville on *Western Manufacture*, *op. cit.*

⁷⁴ This is shown in the following table, taken from the *Seventh Census U. S. Agriculture*, 628, 679, 732, 794, 866; *Eighth Census U. S. Agriculture*, 35, 43, 63, 93, 117; Introduction to *Census of Manufactures* (1860), xxxv.

PRODUCTION AND CONSUMPTION OF WOOL IN THE WESTERN STATES

STATE	1850		1860	
	Pounds Produced	Pounds Consumed	Pounds Produced	Pounds Consumed
Missouri	1,627,164	80,000	2,069,778	191,400
Illinois	2,150,113	396,964	1,989,567	324,300
Indiana	2,610,287	413,350	2,552,318	940,000
Ohio	10,196,371	1,657,726	10,608,927	1,190,751
Kentucky	2,297,435	673,900	2,329,105	1,452,500
	18,881,368	3,221,040	19,549,695	4,098,951

The value of wool exported from Ohio in 1852 was \$2,100,000; in 1858 the value exported was \$2,649,468. Cf. *Second Annual Report of the Commissioner of Statistics for Ohio*, 26-28.

the least amount of labor, and in working them up into the simplest forms of manufactures. With the growth of wealth and with the increase of population, these features changed. Not only did manufacture become more complex, but new industries, invited by the newly discovered resources, began to come in. The region was no longer isolated from the other parts of the country. Steam mills were coming into existence; roads were being built; steamboating reached its higher stages of development; railroads, exerting an equalizing influence, appeared everywhere. In another direction the West began to reap large benefits. To the pioneer only the surface resources were known; but before 1830 some of the richest deposits of iron, coal, salt, clay, and other materials had been discovered, and gas and oil were at least known to exist in some places. Now, industry began to concentrate where power, or resources, or capital offered the best opportunities for success. The industry of the succeeding years was especially concerned with development in the directions which these beginnings had already established.

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